CHAPTER 4
DATA COLLECTION

4-1. Required information

Five categories of information contain the necessary data for reliability modeling: Site Identification, Site One Line Drawings, Name Plate Information, Critical Equipment Designation and Sparing, and Maintenance Data. When combined, this information gives the analyst all the necessary data to populate a reliability model. Data collection for the C4ISR site is not intended to be done in a single setting nor in a single month. This is an ongoing activity that should be completed in as timely a manner as possible without impacting the readiness of the facility. Once completed, updates to the information are only necessary as maintenance is performed on the equipment.

4-2. Site identification data

Site identification data provides basic information about the equipment and the particular C4ISR site. *Site identification data* consists of:

a. Date of the Survey – Establishes the site configuration baseline date.

b. Facility Name/ID number/Location – Identifies the facility

c. Equipment Facility Name/ID – Identifies the equipment with a site specific ID number, name or location.

d. In Service Date – Provides the date the equipment was installed which gives the analyst a starting point to calculate time to failure metrics.

e. Parent System – Allows the equipment to be assigned to the proper site subsystem.

4-3. Site one line drawings

One line drawings are used to develop the reliability block diagrams and can indicate reliability borders for the electrical distribution, pneumatic, or plumbing systems. The one line also indicates critical and redundant equipment, systems, and circuits. These drawing may also provide length of wires and pipe which are needed for the reliability models.

4-4. Nameplate information

Nameplate information identifies the equipment and its specifications which allow the analyst to obtain time to failure data from the equipment manufacturer or to utilize commercial, industrial, or military failure databases such as the Institute of Electronic and Electrical Engineers (IEEE) Std 493™ *IEEE Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems* (Gold Book) or the US Department of the Army's TM 5-698-5, *Survey of Reliability and Availability Information for Power Distribution, Power Generation, and HVAC Components for Commercial, Industrial, and Utility Installations*. Name Plate Data consists of:

a Equipment Manufacturer

b Equipment Model

c Equipment Type

d Equipment Ratings

4-5. Critical equipment designation and sparing

Critical equipment designation and sparing data identifies equipment that is critical to the mission of the particular C4ISR site. Critical equipment must be highly reliable; generally more reliable than is practical in a single piece of equipment. This equipment generally has an automatically switched spare or a quickly replaceable spare on site. *Critical equipment designation and sparing data* consists of:

a. Critical Equipment Designation – Identifies mission critical equipment.

b. Redundant Equipment – Identifies the presence or lack of redundant equipment for critical equipment.

c. Spares – Identifies on site critical equipment spares.

4-6. Maintenance data

Maintenance data provides the reliability analyst with time to failure data as well as insight into the level of periodic maintenance performed on a piece of equipment. Time to failure data provides data for calculation of time to failure metrics while periodic maintenance data allows a validation of manufacturer supplied failure data. This data contains both scheduled and unscheduled maintenance actions. Scheduled maintenance lists periodic maintenance while unscheduled maintenance lists equipment failures and repairs. Maintenance data typically exists in hand written log books or computerized maintenance records.